V. Herbaceous Vegetation

V.A.5.N.c. Medium-tall sod temperate or subpolar grassland

V.A.5.N.c.27. PASCOPYRUM SMITHII HERBACEOUS ALLIANCE
Western Wheatgrass Herbaceous Alliance

Alliance Identifier: A.1232
Pascopyrum smithii Herbaceous Vegetation
Western Wheatgrass Herbaceous Vegetation
Western Wheatgrass Mixedgrass Prairie

ELEMENT CONCEPT

GLOBAL SUMMARY: This midgrass prairie type is found in the northern and western Great Plains, Rocky Mountains, and the interior western United States and possibly Canada. Stands occur on level to gently sloping terrain. They are found on alluvial fans, swales, river terraces, floodplains, valley floors and basins. The soils are clay, clay loam, and silt loam. *Pascopyrum smithii* strongly dominates the moderate to dense (40-100% cover) mixedgrass herbaceous canopy that grows 0.5-1 m tall. Other graminoids that co-occur and may achieve local dominance are *Koeleria macrantha, Eleocharis palustris*, and *Poa* spp. Many other species common in midgrass prairies are also found in this community. These include *Artemisia ludoviciana, Eriogonum* spp., *Bouteloua gracilis, Nassella viridula*, and *Hesperostipa comata (= Hesperostipa comata)*. Shrubs and dwarf-shrubs are rare in this community, but occasional woody plants such as *Artemisia tridentata,Symphoricarpos* spp., *Ericameria nauseosa*, or *Krascheninnikovia lanata* may be present. Introduced species, such as *Bromus tectorum, Bromus inermis, Poa pratensis, Melilotus* spp. or *Cirsium arvensis*, are common in some stands, especially where disturbed.

ENVIRONMENTAL DESCRIPTION

USFWS WETLAND SYSTEM: TERRESTRIAL / RIPARIAN / PAUSTRINE

Ouray National Wildlife Refuge Environment: Western Wheatgrass Herbaceous Vegetation has become established on shallow swales or depressions on second terraces and historic side channels of the Green River floodplain. These sites are essentially flat, holding water following precipitation events and overbank flooding events. Soils are fine, silty clay and clay and exhibited a high degree of cracking during the summer drought. Western wheatgrass stands are grazed by stray horses and elk, and they provide bedding areas for deer and elk in Wyasket Bottom.

Global Environment: This grassland association is widespread in the northern and western Great Plains, Rocky Mountains, the intermountain western United States and possibly Canada. Stands occur on level to gently sloping terrain. They are found on alluvial fans, swales, river terraces, floodplains, valley bottoms and basins. The soils are deep (40-100 cm) and well-developed with clay, clay loam, and silt loam textures. Some stands occur above perched water tables.

VEGETATION DESCRIPTION

Ouray National Wildlife Refuge Vegetation: *Pascopyrum smithii* Herbaceous Vegetation occurs in dense stands, but with a limited distribution within the Refuge. It is likely that more of this type was present prior to construction of dike, levee, and basin facilities. Foliar cover is dense in this association, ranging from 70-90%, with almost all cover being provided by western wheatgrass. Commonly associated species, accounting for <5% foliar cover in any stand, include *Eleocharis palustris, Iva axillaris, Malvella leprosa, Distichlis spicata,* and *Sporobolus airoides*. One interesting site had nearly equal foliar cover of *Pascopyrum smithii* and *Typha latifolia*. Although minor invasion of Western Wheatgrass Herbaceous Vegetation by exotic shrubs has occurred, it is not nearly to the extent that *Distichlis spicata* and *Sporobolus airoides* stands are undergoing invasion. This may be due to the fact that soils are slightly drier in western wheatgrass stands.

Global Vegetation: This association is characterized by a moderate to dense (40-100% cover) mixedgrass herbaceous canopy that grows 0.5-1 m tall and is strongly dominated by *Pascopyrum smithii*. Other graminoids that co-occur and may achieve local dominance are *Koeleria macrantha, Eleocharis palustris*, and *Poa* spp. Many other species common in midgrass prairies are also found in this community. These include *Artemisia frigida, Artemisia ludoviciana, Achillea* sp., *Carex* spp., *Eriogonum* spp., *Bouteloua gracilis, Nassella viridula*, and *Hesperostipa comata*. Shrubs and dwarf-shrubs are rare in this community, but occasional woody plants such as *Symphoricarpos* spp., *Ericameria nauseosa*, or *Krascheninnikovia lanata* may be present. Introduced species, such as *Bromus tectorum, Bromus inermis, Poa pratensis, Melilotus* spp., *Cirsium arvensis, Taraxacum officinale*, or *Salsola kali*, are

common in some stands, especially where disturbed.

Dynamics: In semi-arid climates, this association is found in relatively mesic topographic positions such as swales, river terraces, floodplains and basins that may be temporarily or intermittently flooded. In some cases, it grows on fine textured soils perched above the water table (Hansen et al. 1995, Hansen and Hall 1997). In more mesic climates it is found in extensive upland areas.

MOST ABUNDANT SPECIES

Ouray National Wildlife Refuge

Stratum	**Species**
SHRUB	*Tamarix ramosissima*
HERBACEOUS	*Pascopyrum smithii, Eleocharis palustris, Iva axillaris, Malvella leprosa*

Global

Stratum	**Species**
GRAMINOID	*Pascopyrum smithii*

CHARACTERISTIC SPECIES

Ouray National Wildlife Refuge

Species
Pascopyrum smithii, Eleocharis palustris, Iva axillaris

Global

Species
Pascopyrum smithii

OTHER NOTEWORTHY SPECIES

Ouray National Wildlife Refuge

Stratum	**Species**
N/A	

Global

Stratum	**Species**
N/A	

GLOBAL SIMILAR ASSOCIATIONS:

Pascopyrum smithii - Bouteloua gracilis Herbaceous Vegetation (CEGL001578)--association of the southern Great Plains and Chihuahuan Desert.
Pascopyrum smithii - Bouteloua gracilis - Carex filifolia Herbaceous Vegetation (CEGL001579)--northern Great Plains.
Pascopyrum smithii - Distichlis spicata Herbaceous Vegetation (CEGL001580)--northern Great Plains.
Pascopyrum smithii - Eleocharis spp. Herbaceous Vegetation (CEGL001581)--northern Great Plains.
Pascopyrum smithii - Hordeum jubatum Herbaceous Vegetation (CEGL001582)--northern Great Plains.
Pascopyrum smithii - Nassella viridula Herbaceous Vegetation (CEGL001583)--northern Great Plains.

SYNONYMY:

Wheatgrass (Aldous and Shantz 1924)
Agropyron smithii Great Basin Grassland (Baker and Kennedy 1985)
Agropyron smithii Natural Vegetation (Baker 1984a)
Brown's Meadow grassland (Christensen and Welsh 1963) included in Wasatch Mountain meadow.
Agropyron smithii Habitat Type (Hansen et al. 1995) included in Wasatch Mountain meadow.
Agropyron smithii Habitat Type (Hall and Hansen 1997) included in Wasatch Mountain meadow.
Western Wheatgrass (*Elymus smithii*) Dominance Type (Jones and Walford 1995) included in Wasatch Mountain meadow.
Agropyron association (Ramaley 1916b) included in Wasatch Mountain meadow.
Wheat Grass Association (Ramaley 1919b) included in Wasatch Mountain meadow.
Grassland and Sedgeland (Ramaley 1942) B. included in Wasatch Mountain meadow.
Agropyron smithii Sodgrass steppe (Thilenius et al. 1995) included in Wasatch Mountain meadow.

CLASSIFICATION COMMENTS

Ouray National Wildlife Refuge: N/A

Global Comments: This community is similar to several others that are dominated or codominated by *Pascopyrum smithii*. As currently defined, it represents a western Great Plains and foothills version of the western wheatgrass types in the central Great Plains. Further work needs to be done to refine the differences in composition and environmental characteristics. See recent descriptions by Thilenius et al. (1995) (*Pascopyrum smithii* sodgrass steppe, a more playa-like wheatgrass type) and by Steinauer and Rolfsmeier (2000). In Nebraska, Steinauer and Rolfsmeier (2000) suggest that their stands may resemble *Pascopyrum smithii* - *Nassella viridula* Herbaceous Vegetation (CEGL001583).

ELEMENT DISTRIBUTION

Ouray National Wildlife Refuge Range: *Pascopyrum smithii* Herbaceous Vegetation is limited to portions of Leota Bottom and Wyasket Bottom on undisturbed terraces of the Green River floodplain.

Global Range: This midgrass prairie type is found in the northern and western Great Plains, Rocky Mountains, intermountain western United States and possibly Canada, ranging from North Dakota and possibly Saskatchewan, south to Nebraska and Colorado, west to northern Arizona, Utah and Idaho.

Nations: CA US
States/Provinces: AZ CO ID MT NE SD SK UT WY
TNC Ecoregions: 10:C, 11:C, 21:C, 26:C, 27:C, 6:C, 9:C
USFS Ecoregions: 313D:CC, 331D:CC, 331F:CC, 331G:CC, 331H:CC, 331I:CC, 341C:CC, 342F:CC, M313A:CC, M331A:CC, M332E:CC
Federal Lands: NPS (Sunset Crater); USFWS (Ouray)

ELEMENT SOURCES

Identifier: CEGL001577 **Confidence:** 3 **Conservation Rank:** G3G5Q
REFERENCES: Aldous and Shantz 1924, Baker 1983c, Baker and Kennedy 1985, Bunin 1985, Christensen and Welsh 1963, Godfread 1994, Hall and Hansen 1997, Hansen et al. 1991, Hansen et al. 1995, Jones and Walford 1995, Marr and Buckner 1974, Ramaley 1916b, Ramaley 1919b, Ramaley 1942, Shanks 1977, Soil Conservation Service 1978, Steinauer and Rolfsmeier 2000, Thilenius et al. 1995, Von Loh 2000.